

# Déjà vu Result of Non-Contextualized Memory Retrieval Connected to Sudden Decreases in Blood Sugar

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## Introduction

The nature of “Déjà vu” has been a topic of speculation for hundreds of years, but such a phenomenon may soon be understood as a function of variable blood sugar and how this affects the rate of production of proteins upon which memories are encoded.

## Abstract

Human memory is contextualized through organization of memories relative to other memories i.e. it is associative. The proteins upon which these memories are encoded are physically collocated with others which are conceptually associated. Under ideal conditions, the new memory and copies of associated memories are generated in unison and stored in a manner which causes both the new memory and associative “tags” to be automatically recalled together any time either is accessed.

The production of memory-encoding proteins is a metabolic process requiring sugars to be sufficiently available to support normal metabolic function. It takes some amount of time for these proteins to travel to their destination and to be physically joined with other proteins describing associated memories. Unlike data stored in a computer, memories are “timestamped” or contextualized by other memories. If a newly formed memory is stored, devoid of context (due to a paucity of surrounding proteins secondary to a transient metabolic deficiency stemming from low blood sugar,) the result might very well be that an individual would not be able to judge; based upon the memory; when the memory was stored.

As the overarching consciousness would be aware in the context of the purely “electrical” short-term memory that the memory was stored recently, the medium-to-long-term memory and the electrical, short-term memory would each separately report back to the Pre-Frontal Cortex using their own unique language concerning the memory of the same event.

The Pre-Frontal Cortex, responsible for overall situational awareness, would respond to this by erroneously concluding that there are two separate memories of two separate events even though there is only a single event. The short-term memory, in its own language, reports that the memory is “recent,” but the medium-term protein-based retrieval system; which has its own analog electrical language which can be distinguished from the other by the Pre-Frontal Cortex; reports that the memory is somewhat old, but how old it is, precisely cannot be ascertained except through association with other memories. Oftentimes, all that is required for the brain to make sense of, for example, the experience walking into one’s own kitchen for the most recent of hundreds of times is to simply append a protein tag that says, “This

experience is not the same as all of the previous times I walked into the kitchen.” However, under the condition of metabolic strain (due to low blood sugar, namely,) the encoding of the protein for the memory, itself, is prioritized and the appended contextual tags are omitted. Particularly under the condition that a person is in familiar surroundings, it would be likely that the brain could, under a condition of metabolic strain, interpret a single new memory as two memories; one old and one new.

Déjà vu is always a non-persistent state as the brain is eventually able to catch up and begin to again store memories with the appropriate contextual tags. If a state of metabolic deficiency persists, memory encoding is automatically slowed sufficiently so as to impair later recall but so as to prevent Déjà vu, with the brain favoring contextual memorization and perhaps even using the recognition of a Déjà vu event, itself, as a cue to generate memory-encoding proteins more parsimoniously in response to the deficient metabolic conditions. Thus, Déjà vu is a manifestation of an internal compensation mechanism within the brain responsible for titrating the rate of protein formation under changing conditions of available energy. It could be understood metaphorically as changing from a higher gear into a lower gear.

## **Conclusion**

Although the practical significance remains far from clear, understanding Déjà vu may bring us a step closer to a more complete understanding of human neurological phenomena.